

SPECIAL COMMUNICATION

Team Science in Family Medicine Research

Arch G. Mainous III, PhD

Collaboration, particularly interdisciplinary collaboration, is very common in family medicine research. Interdisciplinary collaboration and team science are encouraged and have significant advantages but they also have challenges to implementation. Addressing those challenges, even with changes to how promotion and tenure are conceptualized to reward team science is necessary for family medicine research to continue to grow and prosper. (J Am Board Fam Med 2024;00:000–000.)

Keywords: ADFM/NAPCRG Research Summitt 2023, Capacity Building, Family Medicine, Interdisciplinary Health Team, Intersectoral Collaboration, Team Science

No one knows everything. Family medicine research can benefit from collaboration not just with colleagues in family medicine down the hall but across the country and around the world, as well as from colleagues in other disciplines.¹ I am currently 50% time in a family medicine department and 50% time in a health services research department in a college of public health. I have been an Associate Dean in a college of medicine and a Vice-Chair for Research in a department of family medicine and a Chair of a department in a college of public health. The idea of collaboration with people outside of family medicine is entrenched into family medicine. Many departments of family medicine are named with titles like “family and community medicine,” “community health and family medicine,” or “family medicine and community health.”² Interdisciplinary collaboration and team science are encouraged and have significant advantages, but they also have challenges to implementation. Specifically, turf battles and conflicts over roles within the interdisciplinary teams are not uncommon.

Many investigators in family medicine have already embraced aspects of collaboration outside of the family medicine family. Many investigators have Master of Public Health Degrees, Master of Science in Clinical Research or even PhDs. This interdisciplinary training and rubbing elbows with individuals with other skill sets has helped to engender an appreciation for the value of collaboration. Some family medicine investigators even have appointments in other colleges like Schools of Public Health or Nursing. Many family medicine researchers consider themselves to be health services researchers. Consequently, health services research is a very common link between Schools of Public Health and family medicine. Those associations provide potential colleagues for collaboration. Those collaborations not only provide methodological skill sets like biostatistics, qualitative methods, machine learning and others but also help in designing research questions that may not initially occur to the family medicine investigator.

Team science is a concept that has become very popular and rightfully so.³ Many research methods and areas of specialization like artificial intelligence (AI), biostatistics, and laboratory methods are necessary to make a competent research team that works together. This mixture of expertise is needed to make the breakthroughs in science to move the field forward. Team science is not a new concept, but it has become more important over time. Although insularity in research teams can be very comfortable because everyone speaks the same language, has similar experiences and knowledge bases and worldviews, collaborating with individuals with

This article was externally peer reviewed.

Submitted 28 November 2023; revised 23 January 2024; accepted 29 January 2024.

This is the Ahead of Print version of the article.

From the Department of Community Health and Family Medicine and Department of Health Services Research Management, and Policy, University of Florida, Gainesville, FL.

Funding: None.

Conflict of interest: None.

Corresponding author: Arch G. Mainous III, PhD, Department of Community Health and Family Medicine, University of Florida, 1329 SW 16th Street, Gainesville, FL, 32610 (E-mail: arch.mainous@ufl.edu).

complementary but different skills and knowledge bases can fill in the deficiencies in the team and allow the team to address questions that a team composed only of people from family medicine departments could not previously adequately address. Those different perspectives, new techniques or methods and knowledge bases can energize the entire team. This interdisciplinary collaboration is a good thing and may be required by funders who see the value in collaboration.

Research centers like the Clinical and Translational Science Awards (CTSA) Program intentionally pull people together to promote partnerships and collaborations to facilitate and accelerate research projects.⁴ A mission of the CTSA program which is embraced by family medicine is translating a basic discovery to a clinical application in primary care and a corresponding demonstrated improvement in public health. This requires a team of scientists and clinician investigators having a wide range of expertise and perspectives and the creation of productive and mutually beneficial collaborations that depend not only on individual excellence, but on teamwork, coordination, cooperation and communication. Training in teamwork as faculty development core skills could enhance these collaborations. Partnerships and collaborations across individuals and organizations are essential because the expertise, capabilities and viewpoints required for successful translation tend to reside in different groups with distinct missions.

As we add AI and machine learning into the mix of family medicine research topics more collaboration and collaborators will be needed. Skills in genetics can help a team focused on projects like precision medicine. Similarly, behavioral science and training in implementation science can help with many new research ideas in family medicine. All these can be added to the usual list of epidemiology, biostatistics and many more. Many of those new collaborators know little about delivering care in a family medicine office context. But working with them can potentially add new allies to improving primary care and public health. They can become excited about new questions to ask.

An additional value of team science is that for many promotion and tenure committees they have begun embracing the idea of team scientists realizing that a successful and sophisticated project depends on an interdisciplinary team working together.^{4,5} The idea that an investigator is going to do everything within a project on their own has

fallen out of favor. Consequently, people who are good collaborators in interdisciplinary projects but not necessarily leaders of projects are being accorded respect and acknowledged for a new and important role. Some universities are even providing manuals to help faculty highlight their team science activities and productivity (University of Washington, University of North Carolina).^{6,7} Contributions of team scientists have historically been and will continue to be undervalued in the academic environment without cultural shifts in how we value team science.

What does family medicine research need to do to embrace and benefit from interdisciplinary collaboration? Several things immediately come to mind.

First, as mentioned earlier, the discipline needs to embrace and seek out collaboration. Collaboration with health services researchers or implementation scientists or AI scientists should be seen as a positive thing. Family medicine researchers should not focus on these potential collaborators and their limited knowledge base of family medicine as a negative to working together but should see it as an opportunity to potentially educate new aficionados working to improve primary health care delivery. Insularity and barriers should be deemphasized and not rewarded.

Second, family medicine researchers need to listen closely to the ideas proposed by their interdisciplinary colleagues. Rather than dismissing them as not part of the usual focus areas of family medicine this new perspective can help to make a jump forward. It is important to promote and embrace interdisciplinary collaboration that can lead to new ways of looking at a problem. Remaining too limited in perspective leads to stagnation and hurts innovation. Someone who looks at the problem in a new way can help the entire team move toward innovative solutions.

Third, family medicine researchers and the administration of family medicine departments need to nurture and value team scientists. Many research questions put forward by epidemiologists and information scientists and health services researchers have direct implications for outpatient primary care practice. Accepting a role as a team member of the research team rather than fighting over who gets the most credit needs to be valued by the department. Collaboration rather than competition can help everyone make new discoveries and get scholarly productivity.

In conclusion, working together as a team has many positive benefits. We cannot continue to conceptualize research as a zero-sum game where only 1 person gets credit for the research project. Learning how to be good collaborators and to work in a cooperative and noncompetitive fashion should be an emphasis in faculty development training and ideas that everyone agrees with. Embracing interdisciplinary collaboration and team science can help family medicine research grow and prosper. If we do that, we will all be better off.

To see this article online, please go to: <http://jabfm.org/content/00/00/000.full>.

References

1. Mainous AG, III. Let's Reconceptualize how leadership training fits with teamwork and cooperation. *Fam Med* 2018;50:257–8.
2. Weidner A, Grumbach K, Gilchrist V, Zweig S, Davis A. What's in a name? Departments. *Ann Fam Med* 2019;17:185–6.
3. National Research Council. 2015. *Enhancing the effectiveness of team science*. Washington, DC: The National Academies Press.
4. Mazumdar M, Messinger S, Finkelstein DM, Biostatistics, Epidemiology, and Research Design (BERD) Key Function Committee of the Clinical and Translational Science Awards (CTSA) Consortium, et al. Evaluating academic scientists collaborating in team-based research: a proposed framework. *Acad Med* 2015;90:1302–8.
5. Meurer JR, Fertig J, Garrison O, Shaker R. Team science criteria and processes for promotion and tenure of health science university faculty. *J Clin Transl Sci* 2023;7:e27.
6. University of Washington. *Interdisciplinary research: appointment, promotion, and tenure (APT) toolkit*. 2020. Available at: [Interdisciplinary-APT-Toolkit.pdf\(uw.edu\)](https://www.washington.edu/interdisciplinary-apt-toolkit).
7. University of North Carolina. *Tips for highlighting team-based research and scholarship in appointment, promotion and tenure packages*. 2023. Available at: [Tips for Highlighting Team-Based Research and Scholarship in Appointment, Promotion and Tenure Packages \(unc.edu\)](https://www.uncc.edu/tips-for-highlighting-team-based-research-and-scholarship-in-appointment-promotion-and-tenure-packages).